**Before the**
**FEDERAL COMMUNICATIONS COMMISSION**
**Washington, DC 20554**

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| In the Matter of | ) | |
| | ) | IB Docket No. 16-185 |
| 2019 World Radiocommunication Conference Advisory Committee | ) | |

**COMMENTS OF T-MOBILE USA, INC.**

T-Mobile USA, Inc. ("T-Mobile")[1/] submits these comments in response to the Public Notice issued by the International Bureau, seeking comments on the draft recommendations (the "Recommendations") of the World Radiocommunication Conference Advisory Committee on several issues that will be considered at the 2019 World Radiocommunication Conference ("WRC-19").[2/] In order to most effectively promote the Fifth Generation ("5G") technology and services critical to meeting consumer and business needs, the Commission should adopt Recommendations that promote flexible spectrum use, permitting the marketplace to drive spectrum harmonization for terrestrial services.

## I. INTRODUCTION

T-Mobile, including the MetroPCS brand, offers nationwide wireless voice, text, and data services to 74 million subscribers.[3/] In the first quarter of 2018, T-Mobile added 1.4 million net customers – marking twenty straight quarters of adding more than 1 million customers every

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1/ T-Mobile USA, Inc. is a wholly owned subsidiary of T-Mobile US, Inc., a publicly traded company.

2/ *International Bureau Seeks Comment on Recommendations Approved by World Radiocommunication Conference Advisory Committee*, Public Notice, DA 18-423 (rel. Apr. 26, 2018) ("*Public Notice*").

3/ *See* T-Mobile News Release, *T-Mobile Celebrates 5 Years as a Public Company with Record-Low Churn, Industry-Leading Customer Growth, and Strong Profitability*, (May 1, 2018), https://newsroom.t-mobile.com/news-and-blogs/q1-2018-earnings.htm.

quarter.[4/] T-Mobile also saw continued growth in postpaid phone customers – with postpaid net additions expected to lead industry for the seventeenth consecutive quarter[5/] – and continued success at MetroPCS.[6/] Moreover, T-Mobile is continuing to deploy and expand new technologies. It announced that it will build out 5G technology in thirty cities this year using its 600 MHz and millimeter wave band spectrum.[7/]

Decisions made at WRC-19 will be critical to spectrum used by U.S. consumers, businesses, service providers, and manufacturers. Consumer demand for wireless broadband has increased dramatically, as data traffic has more than tripled in the last two years to over 13.7 trillion megabytes.[8/] And by 2022, the average traffic per subscriber in North America will be 22 gigabytes per month.[9/] This trend – and the corresponding demand for wireless network capacity – will continue to drive the need to identify spectrum available for wireless services. That is among the reasons why T-Mobile has participated in this proceeding and in the development of the Recommendations.[10/]

But WRC-19 decisions will not be merely about spectrum designated in the U.S. for wireless networks. WRC-19 will identify spectrum for mobile use pursuant to an International Mobile Telecommunications ("IMT") designation, facilitating *worldwide* harmonization of

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4/ *See id.*

5/ *See id*.

6/ *See id*.

7/ T-Mobile News Release, *T-Mobile Building Out 5G In 30 Cities This Year…And That's Just The Start* (Feb. 27, 2018, 11:45 AM), http://investor.t-mobile.com/file/Index?KeyFile=392359656.

8/ ACCENTURE, HOW THE WIRELESS INDUSTRY POWERS THE U.S. ECONOMY 6 (2018), https://api.ctia.org/wp-content/uploads/2018/04/Accenture-Strategy-Wireless-Industry-Powers-US-Economy-2018-POV.pdf.

9/ *Id.*

10/ *See* Comments of T-Mobile USA, Inc., IB Docket No. 16-185 (filed Nov. 8, 2016).

spectrum for wireless networks. Global spectrum harmonization will promote innovation and investment because of efficiency-producing economies of scale and scope. The U.S. positions at WRC-19 should therefore reflect these twin goals of spectrum management – helping identify spectrum bands that can be used both domestically, to ensure sufficient spectrum capacity, and internationally, in order to promote the global harmonization that will make its use more commercially attractive.

## II. THE COMMISSION SHOULD ADOPT RECOMMENDATIONS THAT HARMONIZE SPECTRUM AND PROMOTE FLEXIBILITY

### A. Document WAC/053 (23.04.18) – Agenda Item 1.13 – Identification of Frequency Bands for the Future Development of IMT.

This Agenda Item considers the identification of frequency bands for the future development of IMT, including possible additional allocations to the mobile service on a primary basis.[11/] WRC-15 invited the International Telecommunications Union ("ITU") to determine the spectrum needs for terrestrial systems in the bands between 24.25 GHz and 86 GHz, targeting, among others, the 37-40.5 GHz, 40.5-42.5 GHz, and 42.5-43.5 GHz bands.[12/] The 37-40.5 GHz and 42.5-43.5 GHz bands, in particular, already have primary mobile allocations, and the 40.5-42.5 GHz band may require additional primary mobile allocation.

T-Mobile strongly supports View A of this Agenda Item. In the U.S., the Commission has already taken important steps to make spectrum in the 37-40 GHz band available for mobile services – much of it for flexible wireless use in a new Upper Microwave Flexible Use

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11/ *See Public Notice*, Attachment A at 11, 13.

12/ Resolution 238 (WRC-15), https://www.itu.int/dms_pub/itu-r/oth/0c/0a/R0C0A00000C0014PDFE.pdf.

Service.[13/] While the Commission has announced immediate plans to auction the 28 GHz and 24 GHz bands,[14/] it is expected that it will also auction at least the spectrum between 37.6-40 GHz soon after. When it does, it will create a meaningful additional opportunity for deployment of spectrum that can be used for 5G networks. But the full benefit of deploying this spectrum for mobile use in the U.S. can best be realized by harmonizing the allocation of the full band internationally. View A explains that "[t]he equipment developed for operation in the 37-40 GHz frequency band . . . can also support other 5G networks operating within the 37-43.5 GHz radio tuning range."[15/] Facilitating mobile use within that tuning range by other administrations will expand the range and number of devices using that spectrum, promoting economies of scope and scale.

Designating the full 37-43.5 GHz band for mobile operations will neither disturb existing Commission decisions regarding this frequency range nor pre-judge future domestic or international allocation decisions – it will merely promote the flexibility necessary to permit global development of devices throughout the band. The Commission permits satellite sharing in the 37-40 GHz band.[16/] It also permits primary satellite use in the 40-42 GHz band.[17/] WRC-19

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13/ *Use of Spectrum Bands Above 24 GHz For Mobile Radio Services, et al.*, Report and Order and Further Notice of Proposed Rulemaking, 31 FCC Rcd 8014, ¶ 161 (2016) ("*Spectrum Frontiers Report and Order*").

14/ *Auctions of Upper Microwave Flexible Use Licenses for Next-Generation Wireless Services*, Public Notice, FCC 18-43, ¶ 1 (2018).

15/ *Public Notice*, Attachment A at 13.

16/ *Spectrum Frontiers Report and Order* at ¶ 132.

17/ *See* 47 CFR § 2.106.

actions consistent with View A will not change those decisions or pre-judge Commission allocation decisions covering the spectrum above 42 GHz.[18/]

Similarly, international designation of the 37-43.5 GHz band, as contemplated by View A, will not mandate any particular use by other countries. Instead, it provides flexibility for administrations to proceed as they deem appropriate while creating a band available – but not required – for mobile services. Each administration will choose the band or components of the band for mobile use in its country as appropriate. And if an administration uses any of the spectrum in the 37-43.5 GHz range – not designated for mobile use in the U.S. (such as the 40-42 GHz band) – for mobile operations, it will have no negative impact on U.S. satellite systems. To the contrary, ITU-R studies show that terrestrial IMT can coexist with incumbent satellite services in the 37-43.5 frequency range.[19/] Instead, not allocating the spectrum for mobile service elsewhere will only negatively impact the development of the broader band for terrestrial operations in the U.S. and throughout the world.

In contrast, adoption of View B will depress the benefits of scope and scale that may be realized by designating the full 37-43.5 GHz band for mobile use. Unnecessarily limiting the identification of the full band for IMT will have a negative impact by reducing the range of equipment that can operate in the spectrum, and limiting the potential positive benefits of a global marketplace.

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18/ *Use of Spectrum Bands Above 24 GHz for Mobile Radio Services, et al.*, Second Report and Order, Second Further Notice of Proposed Rulemaking, Order on Reconsideration, and Memorandum Opinion and Order, 32 FCC Rcd 10988, note 35 (2017).

19/ *Public Notice*, Attachment A at 15.

### B. Document WAC/055 (23.04.18) – Agenda Item 9.1 – Possible Technical and Operational Measures for Coexistence and Compatibility Between Terrestrial IMT and Satellite IMT.

This Agenda Item will consider the technical and operational measures to ensure coexistence and compatibility between the terrestrial and satellite IMT operations in the 1980-2010 MHz and 2170-2200 MHz bands when they are deployed in different countries.[20/] Much of the spectrum that is the subject of this issue has been licensed, including to T-Mobile, and is operational in the U.S.

T-Mobile supports View A for this Agenda Item, which helps preserve administrations' flexibility to address compatibility issues, including potential cross-border matters. As View A notes, "[b]oth satellite and terrestrial operations have coexisted in these bands without undue burden on either service, achieving compatibility when necessary through bilateral coordination."[21/] Internationally adopted regulatory constraints therefore are unnecessary and would hamper coordination.

View B proposes to only designate the 1980-2010 MHz band as an uplink band for terrestrial IMT operations, by specifying a power limit of 23 dBm for terrestrial IMT user equipment.[22/] These proposed changes to the international regulations would either conflict with current operations or potentially create unnecessarily prescriptive sharing mechanisms that will be difficult to implement. Proponents of this approach envision an outcome where technical and operational measures are universally applicable. The proposed changes, however, would specify solutions where none are required, while removing flexibility that exists today. Accordingly, no

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20/ *Id.* at 33.

21/ *Id.* at 35.

22/ *Id.* at 42-43.

change to the international regulations are necessary and Resolution 212 should be updated accordingly.

### C. Document WAC/058 (23.04.18) – Agenda Item 8 – Deletion of Footnotes 5.295 and 5.297 of the Radio Regulations.

This Agenda Item relates to the potential deletion of the U.S. from footnotes 5.295 and 5.297 of the International Table of Allocations. The ITU designation for the 512-608 MHz and 614-698 MHz bands is to the broadcasting service on a primary basis. Footnote 5.297 specifies that in the U.S., the 512-608 MHz band has a co-primary allocation to fixed and mobile services, and footnote 5.295 specifies that the 470-608 MHz band is identified for IMT terrestrial service.[23/] Proponents of this Agenda Item argue that deleting the U.S. from footnotes 5.295 and 5.297 is necessary because the U.S. does not have any current or projected mobile terrestrial operations the bands.

As with its positions on the two other matters addressed above, T-Mobile supports View B – an approach that will preserve flexibility. While there are no current U.S. plans to designate the specified spectrum for other than television operations, there is no reason to reduce future flexibility in those bands. As View B notes, "the co-primary allocations have existed for decades without any negative consequences," and if the U.S. removes these footnotes from the Radio Regulations, it would "leav[e] the U.S. subject to gaining international consensus and lengthy delays to even consider allowing mobile use in the future."[24/] Eliminating the footnotes would influence or limit U.S. flexibility to make domestic policy decisions.[25/]

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23/ *Id.* at 77.

24/ *Id.*

25/ *Id.*

That flexibility is critical as the U.S. continues to develop and implement a plan for 5G mobile terrestrial operations. The Commission recently concluded a successful auction of broadcast spectrum – spectrum that T-Mobile is putting to use today.[26/] The broadcast incentive auction enabled the Commission to make a significant amount of 600 MHz low-band spectrum available for terrestrial services, and, as discussed above, T-Mobile is rolling out services in this spectrum in record time. That auction may not have been feasible if a similar action limiting flexibility of spectrum had been taken with respect to the auctioned spectrum. And the potential wisdom of making additional broadcast spectrum available for terrestrial use cannot be fully appreciated until the repacking process is complete – something that is years away. While, as noted above, there are no current plans to convert additional broadcast spectrum, deleting the specified footnotes now may potentially reduce flexibility well before the U.S. can evaluate the transition of the already-converted spectrum.

Finally, deleting the U.S. from these footnotes may dissuade other countries from adding themselves to these footnotes as well as to footnote 5.308A, which designates the 614-698 MHz band for mobile use. That will reduce opportunities for a global market for 600 MHz terrestrial equipment and roaming services – to the detriment of U.S. consumers.

## III. CONCLUSIONS

T-Mobile appreciates the opportunity to participate in the ongoing preparation for WRC-19. In order to ensure the greatest opportunity for deployment of 5G services and technologies,

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26/ *The Broadcast Television Incentive Auction Closes; Reverse Auction And Forward Auction Results Announced; Final Television Band Channel Assignments Announced; Post-Auction Deadlines Announced*, Public Notice, DA 17-314 (rel. Apr. 13, 2017), https://apps.fcc.gov/edocs_public/attachmatch/DA-17-314A1.pdf; T-Mobile News Release, *T-Mobile Building Out 5G In 30 Cities This Year…And That's Just The Start* (Feb. 27, 2018, 11:45 AM), http://investor.t-mobile.com/file/Index?KeyFile=392359656.

the U.S. must ensure that its final positions promote, to the maximum extent possible, ITU actions that favor flexible spectrum use and market-driven global harmonization.

Respectfully submitted,

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